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CENTRAL INTELLIGENCE AGENCY
INFORMATION REPORT

COUNTRY China

DATE DISTR. 14 May 1954

SUBJECT Dairen Machine Factory No 17: Consumers of its
Production, Inputs, Plant Facilities with Enclosed
Sketches, Number of Employees, and Other Details

NO. OF PAGES 36

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ProductConsumer

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(a) Bridge Cranes

These up to the first half of 1951 were ordered by the USSR and sent to that country via the Chinese Changchun Railroad. All products destined for the USSR were ordered through DALVNESTORG (Dalna Vostochnaya Vneshnaya Torgovlia - Far Eastern Foreign Trade). Factory No 17 learned by means of correspondence that some of its bridge cranes went as far as to Baku and Novocherkassk on the Don. After mid-1951 there were no more Soviet orders, but orders came in from the Chinese authorities for cranes for use in factories in Manchuria. No cranes were ordered for Northern China or Chinese areas further from Dairen.

(b) Stationary Aviation Gasoline Storage Tanks

During 1949-50 these tanks were produced for the USSR; some of the tanks were delivered in Dairen to Soviet Air Force units. In 1950 and later orders for these tanks came from the Chinese Army for use in the Korean War. The factory merely loaded the tanks on flatcars and did not know the station of destination.

(c) Tire Vulcanizers

For the USSR; some of the vulcanizers reached Ulianovsk (Simbirsk), and others were delivered in Dairen to the Soviet Army.

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- (d) **Cast Iron Water Mains** During the period 1949-51, mains of 600 and 900 mm in diameter were ordered by the Soviet Army for use in a water pipeline near Port Arthur. During the period 1950-51 water mains of 75, 100 and 300 mm in diameter were ordered by: the Soviet Army, the Dairen Water Works, and the Dairen Soda Ash Factory (Sodovii Zavod). In 1950 pipes of 100 and 150 mm in diameter were ordered for the oil refining plant (Nefteochistitelni Zavod), located on the northern shore of Dairen's Victoria Bay. This plant was undergoing rehabilitation at that time.
- (e) **Gas Separating Machines** Two or three of these machines which were about 7x7x6' and of different designs were produced for the Chemical Plant (Chimichiski Zavod) on the northwest shore of Victoria Bay. This plant also was undergoing rehabilitation.
- (f) **Iron Parts for Conveyor** The factory cast and assembled the conveyor for the Chemical Plant in 1950. The conveyor was approximately one-half kilometer long.
- (g) **Repair of the Soda Ash Plant, Dairen** This work was done in 1948 and 1949 and included repair of the whole piping system and some machinery by a team composed of engineers and workers from No 17. The Soda Ash Plant at that time belonged to DALENERGO.
- (h) **Lighters** During 1948-49 approximately 70 lighters were constructed at Dairen Dock by a No 17 team under one of the factory's engineers. This man was Mr (fnu) Potapoff, who subsequently became the chief of No 17's welding department.
- (i) **Sea-going Tugs** During 1949-50 a team of No 17 workers built some tug hulls at the Dairen Dock yards.
- (j) **Work on Water, Oil, and Steam Pipes on Steamships** During the period 1949-51, a No 17 team repaired pipe systems on steamers undergoing repair at the Dairen Dock yards. The most important work consisted of complete change of the piping system of a Soviet oil tanker of about 10 thousand tons in 1950.
- (k) **Pontoons** These were of two designs. One hundred or one hundred-twenty sets (two pieces each) of Japanese design and made of light iron were manufactured. This type was completed and delivered in 1951. It was done on order of the Chinese Army which supplied the necessary metal and wood. About 100 sets of heavier pontoons (three units per set) of Soviet design were manufactured. They were capable of supporting heavy tanks. These pontoons were still under construction in 1951 and at the time of my departure in March 1952 none of them were as yet assembled, being only from 60-70% completed. These were also for the Chinese Army.
- (l) **Mine Tip-Wagons, Narrow Gauge** Approximately three thousand were ordered by DALVNESH-TORG through DALENERGO in 1950.
- (m) **Spare Parts and Tools for Trucks** These items were produced mostly for Soviet Army units stationed in the former Kwantung Leased Territory. In 1949 and in early 1950 the Soviet Army accepted everything that was produced. In late 1950 and 1951

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the Soviet Army received many spare parts, particularly pistons, from the USSR. These were of better quality and of lower cost than we could produce. As a result, in 1950, we had a stock of unsold spare parts. However, in late 1950 and 1951 the Chinese Army began to buy the parts.

- (n) Truck Headlights,
Tail Lights, and
Tire Chains

During the period 1950-51 truck headlights and tail lights were ordered by DALENERGO for the USSR. [redacted] these were for use by the Soviet Army. However, the Factory had difficulty in selling them as the Soviet Army initially at least refused to take them and also at that time DALENERGO was dissolved. Nevertheless by 1952 No 17 had disposed of the stock.

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[redacted] Truck tire chains were produced for the Chinese Army only in 1951 and 1952.

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- (o) Parts for the
"Faust-Patron"

The "Faust-Patron" is a small bazooka-type weapon. About four thousand sets of two parts each were produced in 1951 to satisfy an order of the Chinese Army relayed to No 17 through the Northeastern Industrial Administration in Mukden. Steel rods of very good quality were used and were provided by the Chinese Army. After the work was finished even the steel shavings had to be returned to Mukden.

- (p) Infantry Entrenching
Tools

In 1951 the Chinese Army placed an order via Mukden for 10 thousand small shovels. Steel sheets for this work were provided by the Chinese Army.

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- (q) Iron Bedstands

In 1950, 10 thousand army iron bedstands were manufactured as well as three thousand hospital iron bedstands. The Army bedstands were for the Maritime Military District of the Soviet Army with headquarters in Voroshilov (formerly Nikolai-Ussurisk).

- (r) Bodies for Electric
Motors of 5 and 10 HP

Only the casting work was done by No 17 for this order placed by DALENERGO for use by the Dairen plant which produced electric motors, transformers, and some electrical appliances. The plant belonged to DALENERGO during the period 1948-50.

- (s) Cast Iron Bodies for
Transformers of
20 and 50 KW

The bodies for the 20 KW transformers were produced for the factory mentioned in (r) above in 1949 and 1950. The bodies for the 50 KW transformers were produced for the same factory in 1951. These bodies were made of metal sheets produced by electric welding. There were also some bodies made for transformers of 100 KW.

- (t) Caps and Pestles for
High Voltage Insulators
and Insulator Hooks

These were made in 1950 and 1951 and probably in 1952. The products were destined for the USSR. Factory No 17 delivered them to the Dairen Porcelain Plant (Farforivii Zavod), which formerly belonged to DALENERGO.

- (u) Electric Bulb Caps

Produced during the period 1948-52 on order of DALENERGO and delivered to the Electric Bulb Plant (Lampovii Zavod) which formerly belonged to DALENERGO. [redacted] during 1947-49 part of the bulb production was sent to Vladivostok.

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- (v) Oxygen Oxygen was contained in metal spheres of 6 cu m. Approximately half of this production, ie 200-250 spheres per day was more than Factory No 17 itself needed. This surplus production was sold under permanent contract to the Soviet Army and to local and Soviet Army hospitals. It was also sold to the Chinese Changchun Railroad works in Dairen, to Dairen Dock (Dal Dock), and to others.
- (w) Nitrogen About 50 or 60 spheres per month of nitrogen were produced, particularly for the Electric Bulb Plant in Dairen
- (x) Wooden Furniture for Barracks Made for the Soviet Army stationed in the former Kwantung Leased Territory during the period 1949-51.
- (y) Cylinders for Diesel Motors Sixteen or eighteen cylinders and pistons were ordered in 1951 by the Soviet Naval yard at Port Arthur. Each cylinder set consisted of four or five parts. [] they were for use in machines utilized in submarines. The design text was in the [] language. The order was not finished []
[] Our horizontal boring machine was too small to make some of the necessary parts, and therefore we turned over those parts to be completed by Factory No 18, which was nextdoor to No 17. However, No 18 made some mistakes in diameter and axis direction and as a result No 17 had to recast the parts which were designed for a pressure of about 100-120 atmospheres. This order was considered a difficult one.
- (z) Electrodes No 17 had a special shop, which by 1952 was under the welding department, for producing coated electrodes. Approximately from three to five tons of electrodes were manufactured per month and were sold on the local market to Chinese factories and to the Soviet Army.
- (aa) Steam Winches The winches were ordered by the Soviet Navy in Port Arthur but the contract was not signed. No 17 considered the 10 winches which it produced as experimental ones. The order was not confirmed and the winches remained in stock. However, in early 1952 [] they were about to be bought by Dairen Dock.
- (bb) Steam Rollers Steam rollers were included for the first time in No 17's Production Plan for 1952. The factory management had attempted without success to avoid the order as it felt that it was inconvenient to fulfill it, particularly as another factory was to build an equal number of steam rollers. In addition, No 17 was incapable of producing riveted boilers having neither the necessary equipment nor the specialized workers. The Northeastern Industrial Administration in Mukden finally agreed to have boilers welded, but insisted that No 17 produce the steam rollers. As of March 1952 some heavy cast iron tires and other parts had been cast. []
[] the tires had already been worked up on the face lathe.

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(cc) Nuts and Bolts

During 1951 and for 1952 orders for nuts and bolts were received from the Soviet Naval dockyard at Port Arthur, from Dairen Dock, and from some other factories. The orders were not sufficient to fully utilize No 17's capacity for this production.

(dd) Railroad Car
Coupling Parts

In 1950 or 1951 automatic couplings of malleable cast iron were produced. These couplings consisted of three or four parts and were made to satisfy an order received from the Railroad Works in Dairen. However, the products were of poor quality, particularly the heavier parts.

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2. In regard to types, sources and amounts of inputs for Machine Factory No 17, [] first to discuss the fuel which was used. Prior to the Korean War coal and coke were imported from the USSR, ie Southern Sakhalin. Oil was not utilized as a fuel. After the beginning of the Korean War coal and coke came from Fushun. The fuel from the USSR had been of good quality, particularly in its being free from sulphur. However, the Chinese coal often contained sulphur and as a result when good iron was heated it at times became sulphuric and easily breakable. Approximate consumption of fuel per year was: coke - three thousand tons; coal - four thousand tons. In regard to firewood, during the period 1948-49 it was received from the USSR by steamer. The wood came mostly in the shape of logs, was of different types and of very low quality. The wood in general could not be used for anything else except fuel. Nevertheless, No 17's sawmill produced some planks and beams for the factory's own buildings. In addition, No 17 also received wood usually from clients who placed orders with No 17's carpentry shop and sawmill. Most of the clients were Soviet military detachments.

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3. In regard to power input, up to March or April of 1952 electric power was furnished to Dairen by the Yalu River dam and power plant. The factory received the current already transformed to approximately three thousand volts. The current was once more transformed at the factory's substation and then again at the shop substation. The standard voltage of motors was 250-300 V.

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The factory substation had a capacity of six thousand kilowatts for which capacity No 17 paid DALENERGO. In practice, No 17 needed no more than four thousand kilowatts, so there was talk of an agreement to give two thousand kilowatts to the adjoining Factory No 18. The big consumer of power in the factory was the casting department with its electric furnace which utilized two thousand kilowatts. After the destruction of the Yalu River dam in March or April 1952 by the US Air Force, electricity was furnished by two Dairen power stations which operated on coal. Their combined capacity was 25,000 KW.

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4. In regard to input of raw materials or semi-finished materials, up to 1949 practically no materials were imported as nearly all materials used came from old Japanese stock. Some of the materials came from No 17's own godowns and some the factory obtained by requisition during the first months of Soviet military occupation. Also, some of the materials were received from clients who had ordered certain items or was obtained from some Chinese firms. The latter must have gained possession of the materials by robbing Japanese stock in the confused period attendant upon the arrival of the Soviet Army in Dairen. In 1949 and 1950 the USSR became the main source of materials. In 1951 No 17 still had material from the USSR but it was part of the stock ordered previously and which had accumulated in the godowns of DALENERGO. This material had not yet been distributed to the factories which belonged to DALENERGO. In addition some material which had been ordered in 1950 arrived only in 1951.

- (a) Steel and Iron - No 2 and No 3 steel, ie construction steel, came from Kom-somolsk on the Amur River. This steel was of the usual shape and consistence and was made up of sheets and bars. There were also some special steels and iron which were for use in transformers, tools, bulb caps, and electrodes. These special items came from other places in the USSR, some even from Moscow.

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- (b) Pig Iron - The usual type of pig iron was received from Komsomolsk. A special type made by the charcoal process came from the Urals. It was stamped with the letter "Г". No 17 used it for the electric melting process for steel and malleable cast iron. In 1951 we began to receive iron, steel, and pig iron from Anshan, Manchuria. At that time the Anshan plants were not yet fully repaired, and as a result Anshan was unable to produce sheets thinner than 6 mm, angles less than 6x75x75 mm. We were able to obtain very few types of special steel from Anshan and no pig iron made with charcoal at all. Nickel, chromium, ferrosilicum, ferrophosphorus, ferromanganese, aluminum, zinc, copper and other metals all came from the USSR.

However, this may have been because for most of them we had some stock in 1951.

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- (c) It was in 1950 that we received the order for 10 thousand army iron bedstands from the Soviet Army headquarters in the Maritime Province. We were unable to obtain the proper steel angles and ribbons from the USSR because this order was not included in the 1950 Plan and as a result the request for the necessary materials had not been sent to Moscow in late 1949. Anshan was not able to produce 4x25x25 mm angles and we therefore ordered them from the main workshop of the former Chinese Eastern Railway in Harbin.
- (d) The need for steel and iron of course depended upon the type and size of the production program or plan. For the years 1949-51 the following figures may be taken as typical:

<u>Item</u>	<u>Quantity</u>
(1) Steel sheets of 2-12 mm thickness	3500-4000 tons
(2) Steel in the forms of L, U, I etc. (This steel was mostly light, either 5x5x40 mm or up to 6x75x75 mm. If there were orders for much frame construction then the steel angles would have heavier profiles, some going up to 12x200x200 mm. In that event the total weight exceeded one thousand tons.)	800 "
(3) Pig Iron	2500-3000 tons
(4) Steel Rods	About 300 "
(5) Iron sheets of 3-.7 mm	" 200 "

- (e) Steel Cables, Insula d Wires, Ball and Roller Bearings - All came from the USSR up to 1951. Then in 1951 the following products were received from China: steel cables and wires from Mukden; bearings from Wafangtien, near the border of the former Kwantung Leased Territory. The factories which produced the above articles were Japanese plants which had been restored to production. The steel cables and wires passed the test of our laboratory and we used them on the bridge cranes which we shipped to the USSR. Up to March 1952 bearings used in important items such as cranes were Soviet bearings of which No 17 had a stock. Chinese bearings were utilized successfully for less important production.

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The factory in Wafangtien had more orders than it could fill. The need for the above materials was determined by the production plan. Each five-ton crane needed from 75-90 m of steel cable with a diameter of 17 mm and with a fixed number of iron threads. Such a crane also needed about 100 ball bearings of different sizes and shapes. No 17 produced itself the roller bearings for the mine tip-wagons, which had a one-ton capacity. For these roller bearings No 17 used common steel or steel of not high grade. The roller bearings were subjected to a heat treatment (cementation of the surface), which was sufficient considering the light work that the bearings were expected to do. They were all anti-friction bearings. It may be of interest for me to point out that sometime in 1949 No 17 received from the USSR a large lot of ball bearings for cranes. The bearings were of original and of good quality.

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(f) Electric motors and sets of appliances for electric equipment for bridge cranes were all imported from the USSR, primarily from factories in Moscow. For 1952 it was supposed that factories in Mukden would supply No 17 with such materials because former Japanese plants in that city had been rehabilitated. 25X1

(g) Electrodes - The normal electrodes (No 36 according to Soviet standards) were produced by No 17 for its own use and for other consumers. It manufactured about 12-15 tons monthly of electrodes for its own use. Total production capacity for electrodes was approximately 30 tons but could be increased if necessary. The electrodes were usually of 4-5 mm diameter and were coated. The coating had to be changed from time to time in the production process by No 17 depending upon the chemicals available at the time. Iron wire of fairly good quality was received from the USSR. In 1949 the wire available was mostly from old Japanese stock. In 1950 and 1951 we needed wire of 4 and 5 mm diameter for electrodes. We had a very soft wire of high quality with a $6\frac{1}{2}$ mm diameter. We gave this wire to a special steel plant in Dairen (Factory No 19 or 20?) to lengthen the wire to the proper size. When the coils of thin wire were returned we found that many were nearly useless for our purpose as the contractors had used Fushun coal to heat the wire and the iron had absorbed much sulphur. 25X1

(h) In regard to the general supply situation at Factory No 17 [redacted] No 17 moved to its present premises in late 1948. At that time it had a relatively large stock of metal (about 2,000 to 3,000 metric tons), collected from former Japanese plants. The stock was composed mainly of iron of frame construction quality, greatly varying in size and shape. Some of the iron pieces were heavy I or U shaped and 20x300x200 mm. There were also approximately 300 tons of high quality steel mostly suitable for tool production. This type of steel also greatly varied in type and shape, was not certified, and was of Japanese [redacted] origin. 25X1

In addition, in a far corner of the plant premises was piled a stock of disassembled and broken machines and construction. This pile must have been at least 1500 tons although it was never weighed. [redacted] 25X1

[redacted] these old stocks had practically disappeared. The lighter pieces were used in items included in the production plan. In order to use this material it was frequently necessary to redraw the original design for production utilizing heavier profiles than had been ordered. The heavy pieces were mostly used for frame works for the new factory shops and also for some auxiliary constructions such as poles for high voltage wires and the assembly and examination stands for bridge cranes. The pile of old damaged machines and metal was nearly all used up, all the suitable parts having been cut up and used for items in the production plan at a time when No 17 was short of new materials of sizes required. The remainder was cut up by the oxygen cutting process and used for scrap by the factory furnace. In 1950 No 17 sold to a Chinese government firm in Tientsin about 200 tons of scrap. Iron included in this scrap consisted mostly of narrow ribbons left over by the iron-cutting machine. By the beginning of 1952 the factory had little scrap left. The problem then became one of collecting scrap from the factory area and of assembling odds and ends from the welding shop. [redacted] 25X1

[redacted] in 1951 the production of No 17 was still based on materials received from the USSR which had been ordered in 1950 and had been delayed in delivery. No 17 received from Anshan only iron sheets and especially bars for use in aviation gas storage tanks and metal pontoons. [redacted] 25X1

5.

[redacted] 25X1

[For sketches of layout and profile of the casting department, and its dimensions, see Enclosure (A).] The equipment of the foundry in general was old and was obtained from various sources. It had been fully rehabilitated, having been in poor condition. Exceptions to the above were: a) the five-ton crane in the iron casting department, was built by No 17 in approximately 1949, b) the three-ton crane in the malleable casting department, was repaired and installed by No 17;

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it had been obtained from Port Arthur and had been manufactured [] c) some machines for preparing loam and sand, were produced by No 17, d) some machines for centrifugal casting of blocks for piston rings and sleeves, were constructed by No 17, e) a small electric furnace for melting iron for centrifugal castings, was built by No 17.

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- (a) See Enclosure (B) for sketch of and details on the Hot Pressing Shop.
- (b) See Enclosure (C) for layout of the First Mechanical Shop, its dimensions, location and type of machines, and general information.
- (c) For a sketch and detailed information on the Second Mechanical Shop, see Enclosure (D).
- (d) The Electric Welding Shop - for a sketch of this shop and detailed information see Enclosure (E).
- (e) The Instrument (or Tool) Shop, Cold Pressing Shop, and Metal Plating Shop - for sketches of and details on these shops see Enclosure (F).
- (f) The Mechanical Repair Shop - for a sketch of and detailed information on this shop see Enclosure (G).
- (g) For a sketch of and detailed information on the Assembly Shop, see Enclosure (H).

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6. In regard to the question of balance of plant facilities, [] how Factory No 17 was assembled in 1948, and that it was a combination of very different units. Two unusual sections of the plant were the Enameled Hollow-Ware Shop and the shop which produced metal caps for electric bulbs. The instrument or tool shop producing drills, cutters, pistons, and piston rings had very light machines and a very light casting department. The largest component of No 17 was the former Suzuki plant of Dairen, which specialized in welding frame construction such as hangars and godowns. As auxiliary sections it had relatively small mechanical, hot pressing, forging, and woodworking departments. It had about one thousand workers as well as a trained management. This Suzuki plant in late 1948 was removed to a practically unoccupied location which was located in the western half of the large Dairen-Kikai premises. Initially, the new factory received only the skeletons of former shops and one and one-half rooms in an office building. Two shops were more or less in working order but they were occupied by the switching shop of the Southern Manchuria Railway. The Economic Department of the Civil Administration of the Soviet authorities in Dairen decided to create a large factory which would primarily produce hoisting machines, initially bridge cranes. For this purpose No 17 had at hand only the welding department properly staffed with workers and equipment and approximately 500 skilled workmen. The plant also had experienced engineers accustomed to working together and an energetic management. However, there was a lack of machines to produce such items as gears. The goal of this plant at that time was eventually to be able to produce one thousand cranes per year. Such a goal required the construction of large new shops, new machines, motor roads, and railway lines of standard and narrow gauge. During the first year, ie in 1949, it was at first necessary to rehabilitate the shops. The skeletons of the buildings had been stripped by the Chinese population of their last piece of wood during the period 1945-48. In order to avoid having idle workers and also to fulfill orders of local Soviet Army and Navy units, the plant produced such items as tire vulcanizers, automobile tools and parts, gasoline tanks, nuts and bolts, and enameled bowls. By 1950 most of the shops were repaired and in their current early 1952 condition and the factory management was looking forward to further expansion in both buildings and machinery in accordance with its general specialty of bridge cranes. However, at that time the policy in the Soviet administration changed, and the further development of Factory No 17 with its orientation to Soviet markets was stopped. The new policy was to produce items which would all go to the Chinese authorities.

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The above changes made for an incompletely organized factory and unbalanced its equipment. However, the management did try to eliminate some of the parts of the plant which did not fit into the general picture. The enameling department was closed in early 1950. As a result, a full set (7-12 pieces) of cold presses (up to 90 tons) became idle and in 1951 were turned over to a Chinese cartridge factory in Mukden. Also, some small lathes of older types were delivered to other Chinese factories after the lathes had been repaired. On the other hand, the factory management attempted consistently to build up its large equipment, ie such items as large lathes, hammers, ovens, and furnaces. Up to 1952, at least, it was difficult to attempt to produce a balanced plan which would fully utilize the factory equipment. In order to utilize fully the casting shop, No 17 needed large orders (1-2 thousand tons) for heavy, simple products which would not have to be passed on too often to other shops for finishing. There were not too many orders for such articles, but No 17 did produce water mains and fittings of over 75 mm diameter, preferably over 100-150 mm in diameter, and some bodies for machines. In order to utilize fully the hot pressing department and part of the Second Mechanical Shop, No 17 needed orders for several hundred tons of nuts and bolts and/or telegraph-telephone hooks for insulators. To produce 100-150 crane bodies was by no means enough for the capacity of the welding department, but the mechanical shops were unable to provide gears and shafts for a larger number of cranes, being limited in special cutter equipment. Therefore, the welding department requested more orders which would be less tied in with the mechanical shop, such as orders for pontoons and gasoline tanks. Narrow gauge, mine tip-wagons were very acceptable because they provided work for welders, for small lathes and revolving machines, as well as for the assembly shop. In order to utilize fully the smaller lathes of the First Mechanical Shop, No 17 needed orders for cylinder sleeves, pistons, and piston rings. These orders were obtained. From the above, one can easily see that Machine Factory No 17 could not have balanced equipment even in the most general sense and certainly did not properly use specialized machines. The plant was heterogeneous and had to have miscellaneous orders in order to stay busy. It was unbalanced in regard to a) the capacity of the shops, b) the equipment. The reasons were that the separate parts of the factory were a) not fully unified, b) the reconstruction as one factory devoted to the production of hoisting machines was frustrated.

7. In regard to the extent of damage and seizure by the Soviets in 1945.

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Factory No 17 was one of the fortunate few exceptions in Dairen in not being dismantled. The Suzuki Plant did not lose a single machine. The only items which were taken, because they were considered to be war booty, were frame constructions for two hangars which had been manufactured to fill an order for the Japanese military authorities.

its losses if any were more than covered by machines brought in from neighboring plants.

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The oxygen plant in Japanese times was part of the Dairen-Kikai enterprise and had two sets of generators. Very soon after the arrival of the Soviet Army in Dairen, the oxygen plant was taken over by the Soviet military authorities for their own use to help out their repair shop and for hospital use. Prior to 1948 a third set of generators was added to this plant by the Soviet Army which had acquired them from some Japanese factory. The whole shop became a part of No 17 in 1948. It had been operated by soldiers of some Soviet mechanical unit.

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one shift was still composed of these soldiers. The factory had a special agreement with this Soviet military unit by which the unit furnished one shift of soldiers and the factory each day sold a certain number of cylinders of oxygen (less than 100) for a fixed price to the unit.

the Soviet Army was interested not only in obtaining the oxygen but also in providing the soldiers with practical training. The factory, when it moved to its present site in 1948, found that the bulk of the area which it now occupies was practically in ruins. The exceptions are mentioned below. See Enclosure (I) for a sketch of the factory grounds and detailed information about the grounds.

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8. Speaking generally about Dairen, in regard to damage and seizure by the Soviets in 1945, one can see the following pattern.

(a) The following plants were left intact and even protected by the Soviets against robbery by the Chinese:

- (1) The Southern Manchurian Railway's main shops, as well as auxiliary railway activities in general.
- (2) Dairen Dock.
- (3) The Port of Dairen itself, that is the section on the southern side of Victoria Bay, perhaps with a few small exceptions.
- (4) The Suzuki Plant.
- (5) Bean oil and other vegetable oil plants. At any rate, nearly all Japanese-owned factories which had had new equipment and processes were in production by the end of 1945. Soviet authorities at that time shipped vegetable oils to Vladivostok.
- (6) By chance some small privately owned factories were not touched particularly those which had no heavy machinery. An example would be the instrument or tool plant.

(b) Equipment seized by the Soviets:

- (1) The Soviet authorities obviously operated in an organized manner in seizing nearly all the newer types of heavy machines to be found in Dairen, with particular emphasis on metal working machines, electric generators, and electric motors. Even two boilers of very recent construction (manufactured just before or even in the early part of World War II) were taken from the electric plant of Amanagawa in Dairen.
- (2) The machines were disassembled, packed, carefully marked, brought to the port, and shipped to Vladivostok.
- (3) Loading of the machines was done hurriedly. The reason for this was that there were widespread rumors that on about 1 Nov 45 Dairen Port would be opened [redacted]

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(c) Chinese robbing Japanese factories and houses - Soon after the Japanese surrender, the Chinese began to rob Japanese factories and houses. Sometime afterward, the equipment which had been robbed was found to be in use or in storage in Chinese factories. Later, much of this equipment was bought by Factory No 17 and other plants.

9. In regard to rehabilitation [redacted] Factory No 17 itself was not destroyed by Soviet seizure and damage. The destruction experienced by the shops on the territory taken over by the Factory in 1948 was repaired in the following manner.

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- (a) Main buildings were rehabilitated or built afresh by DALENERGO, utilizing its capital building department, ie new capital investments. This department gave all metal construction work to Factory No 17.
- (b) Smaller buildings were repaired or built anew by No 17, utilizing a "current repairs" account.
- (c) Rehabilitation of machines which Factory No 17 received from DALENERGO (machines which had been collected for other factories [redacted], or bought itself from Chinese factories or sellers, as well as the rehabilitation of appliances such as furnaces and ovens, was also done by No 17. Major work was placed on the account of the capital building department; minor work under the current repairs account.

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- (d) New machines which came from the USSR (including two shears which were of East German manufacture) were charged to the account of new capital investments.

(e)

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all expenses were paid for in local Manchurian currency and were really therefore of no cost to the USSR, being paid in occupation paper money printed by the USSR and twice devalued. Some actual assets for DALENERGO were the machines which arrived from the USSR, but the cost of these machines was only a small fraction of the cost of the machines seized in Dairen by the Soviet authorities and transported to the USSR.

10. In discussing the subject of the extent to which plant facilities are utilized, it is correct to state that the factory was not used to the full extent of its productive capacity. The main reasons for this were the planning policies which had to be followed and the policies of the authorities in placing orders. The factory could have a better output even in its present unbalanced condition as regards its machines, if the production plan handed down from Mukden would be a) nearer to factory possibilities or potentialities, b) undergo less changes from year to year, c) keep production concentrated on a smaller variety of items. Another handicap in proper utilization of the plant was the removal from active positions of authority of Russian emigré engineers. These positions had been that of director, chief mechanical engineer, and masters of shops. These Russian engineers were retained in the head office of the factory only as technical advisors. Until early 1952 No 17 had no acute shortage of materials to meet its production plan. The factory could avoid difficulties by substituting one material for another. This obviously resulted in some loss of time and materials in the production process, but it was not a large loss. Most of the difficulties were caused by orders which were given over and above the production plan in the middle of the year. An example was the order for army bedstands. All this was very troublesome, but had no real importance in affecting figures of total yearly production. as the orders of this type were a small item.

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The Russian emigré engineering staff was not certain of receiving a regular supply of materials from the Industrial Administration in Mukden.

11. The total number of employees at Factory No 17 was approximately three thousand for the period 1951 and 1952. In 1948 it was a little over two thousand. About 15-20% of the total workers were women, working in: a) the foundry, as molders and pourers in individual casting of piston rings and as molders for insulator caps; b) the welding shop, as welders for less important work; c) Mechanical Shop No 1, as turners, cutters, and polishers on piston ring production; d) Mechanical Shop No 2, in production of nuts and bolts; e) production of electric bulb caps, in galvanizing, cleaning, sorting and pressing; f) hot metal plating, as sorters; and g) the electric repair shop. In regard to fluctuation of employees, the ratio of fluctuation was calculated by comparison of the total number of workmen at the end of the year with the sum of dismissed workers, plus newly employed workers, during the year. This was a Soviet method of calculation which served to exaggerate greatly the fluctuation figures. This method of calculation for the years 1950 and 1951 indicated about 60% of fluctuation with some decline in 1951. The main reasons for the above were: a) Factory No 17 had about 200 pupils which attended a four- or five-month course and were included in the general total of personnel; all 200 twice a year were shown as entering the factory and more than half of the number as being dismissed, whereas actually they were merely graduated and were accepted in other Chinese factories at a better wage than No 17 could pay; b) some trained workmen were decoyed to other Chinese factories with better wages. Usually the management of No 17 did not oppose such a change as (often) these same workers (after a few months) applied for re-employment at No 17. In 1952 and later it was expected that the fluctuation would decrease as all mechanical industry was concentrated under the Industrial Administration in Mukden. On the other hand, it could be that this administration might decide to reinforce some other factories at the expense of No 17.

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In 1949 and 1950 No 17 was sometimes pressed by DALENERGO to let many of its workmen go to other factories. Quite a few welders went to Dairen Dock, after having worked there some months and having organized production of lighters. At that time, No 17 was a contractor for this work at Dairen Dock. At another time, a number of fitters, working on general repair of water, steam and oil pipe systems, was also retained by Dairen Dock. Also, about 60 workmen from No 17's repair shop were transferred to the soda ash factory, after having worked on repairing that factory.

12. In regard to the breakdown of number of employees by departments, the following approximate figures, totalling 2900, may be given:

Office - 200 (including laboratory)
 Welding - 500
 Casting - 500
 Two mechanical shops - 400
 Repair shop - 400
 Assembly shop - 300
 Hot pressing shop - 150
 Cold pressing and metal plating shop - 150
 Inspectors - 50
 Woodworking department - 100
 Transport and loading workers - 100
 Oxygen department - 50

The above figures for the shops, beginning with welding and ending with wood-working, include electricians.

13. In regard to the number of shifts, each shift was eight hours. The average number of shifts for all the shops of the factory was calculated to be 1.6-1.85. These, however, are only general figures. In practice the number of shifts was not the same at all times, even if the number of employees was constant. It actually depended upon what type of production was considered to be most important at the moment. If certain activities required the use of machines of which the factory was in short supply, workers would at once be removed from less important jobs and machines and placed on second and third shifts to work on the machines which were doing the important work. Such machines were DIP lathes, revolving lathes, and carousels (boring and turning lathes). They were usually worked the three shifts, as were some machines in the repair shop. Usually in November and December of each year the assembly shop operated on a three-shift basis, as it did not have adequate space to place all the workers needed to assemble production which was considered particularly important for the successful completion of the plan for the year.
14. In regard to skill of employees, speaking generally, high quality production of more important items could be and was done. The question of course remains how many rejected parts were left. To decrease the number of rejections by the control department (inspectors), the factory needs: a) good machines, b) good shop chiefs, and c) alert foremen. Factor (a) at present would be out of control of Factory No 17 as new equipment at present may only be received from the USSR via Mukden and Peiping, and this equipment would be part of the annual, over-all Soviet-Chinese trade contract. In regard to factor (b), the shop chiefs are now all Chinese and not one of them is an engineer. Their lack of education and

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their fear of punishment made them very inefficient administrators. Of course the transfer of the top management of the factory to Chinese hands did not help the situation. As regards factor (c), during 1951 and 1952 the foremen were greatly demoralized by the campaign of punishment for any possible errors. In regard to the question of number of skilled, semiskilled and unskilled workers in each major department [redacted] unable to give the figures for each department. However, a general reply would be that the factory had very few unskilled laborers. In all the shops there were from 50 to 70 cleaners, about 50 men in the welding department to move heavy parts and materials, about 50 to discharge and load materials and production on and off of railway cars. That is, there was a total of from 150 to 200 men and women in the unskilled laborer category. In regard to semiskilled hands, there were about 200 industrial pupils and approximately 800 men and women of low-grade of qualification, ie of the second and third grades according to the Soviet seven grades qualification system, the seventh being the highest. There were about 900 skilled laborers of average skill, ie fourth and fifth grades. There were about 400 to 450 skilled workers of above average skill, ie sixth and seventh grades. Factory No 17 had from 50 to 75 men of the seventh grade. These outstanding workers were mostly concentrated in welding, mechanical shops, tool producing, and repair shops. The foremen were chosen from this group. In regard to shortages of skilled labor, the factory management did not feel that there was any acute shortage of skilled labor needed to fulfill the production plan assigned to the factory. Efforts to increase the skill of workers were made for two reasons: a) to be able to have more foremen and if necessary to promote the most able of them to higher positions, b) to be ready for more difficult and new types of production. In 1952 the situation worsened because of the promotion of Chinese personnel to the positions previously occupied by local Russians, and, as a result, the quality of foremen declined. Incidentally, the Chinese industrial pupils who trained from four to six months by working at No 17 were given this instruction more to provide training of general use to all Chinese factories than just to No 17. There were also political reasons. In regard to the number and technical quality of Soviet technicians in the plant there were about five of them as of 1950. However, by early 1952, they had all departed. In 1951 all these Soviets had been removed from No 17 and the majority of them returned to the USSR. One or two of them became members of the advisory commission which supervised four Dairen mechanical shops which belonged to the Chinese Industrial Administration in Mukden. Once or twice a week, one of them, formerly the chief engineer of No 17, visited the plant, but in practice these visits had very little effect. [redacted] in 1952 the one or two who had remained were also soon to return to the USSR. A special school in Dairen, but not at Factory No 17, was organized by DALENERGO. The school later was transferred to some higher authority. The school was operated by Soviet engineers working through interpreters and the course lasted from four to six months. There were at least two levels of workers entering the school. Some of these were of average skill, ie third and fourth grades; others were of the highest qualification, ie sixth and seventh grades. In addition, perhaps two or three of the most highly qualified workers were sent to some other school, considered to be of university level, for about a one-year course, at which time they were trained to be engineers. None of the workers last mentioned had returned to No 17 [redacted] Factory No 17 usually considered the men sent to the above school, particularly the most skilled workers, as lost to the factory because they usually did not return and were used at other new plants.

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15. In regard to the extent of Soviet managerial activity in the plant, five or so Soviet technicians were recalled from No 17 after the breakup of DALENERGO. The technicians were engineers and bookkeepers. Also, after the transfer of the management of the plant to Chinese hands from the hands of the local Russians, the influence of the USSR on the factory much decreased. Of course, it is very likely that the influence is retained by having Soviet advisers in the Chinese Industrial Administration in Mukden, but this fact, if it was a fact, was not known to the managerial staff at No 17. Incidentally, none of the correspondence was in Russian at the plant.

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16. In regard to personalities at Factory No 17, [] the management of the plant in the summer of 1951 was transferred to the Chinese, and the former director, a local Russian named Alexander Alexandrovich Ganshin, became only a vice director with no powers of decision. In practice, in the first months of 1952, Ganshin was merely an important advisor who answered questions put to him by the Chinese director, guided the work of engineers at the plant in the proper direction, but had no policy making powers. Initially, in the summer of 1951, the management was turned over to a Communist woman from Shansi, who was about 35 years of age. She had no education of any particular significance, perhaps she had finished the equivalent of a Chinese high school, did not know the Russian language, and spoke only a very few English words. She was a wife of a prominent Communist in the Dairen administration. In late 1951 she became only the second vice director and the directorship was given to a Chinese man who was the local representative of the Industrial Administration in Mukden. In addition to his being named Chief of No 17 he was also director of another machine factory, [] Neither of these Chinese was able actually to function as the Director; the woman was incapable and the man was too busy. So it may be said that Ganshin, in practice, retained the directorship and at the same time observed the proper courtesies toward the formal directors. In early 1952 another Chinese man from Mukden was appointed director of Factory No 17. This was his only post [] he actually ran the plant. Therefore, at present, the management is Chinese, but the engineering brains are those of local Russians who no longer have the power of decision. Most important among the officials of the plant were:

(a) AA Ganshin []

(b) Among the most important technicians was Nicolai Nicolaivich Ovchinkin, []

(c) Igor Nicolaivich Buniakin, []

(d) (fnu) Yogolevich was chief of the laboratory of the factory. []

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There were no labor heroes at the Factory.

17. In regard to expansion, Factory No 17 itself is an expansion from the status of 1946 [redacted] plans for a major expansion had not come about. In regard to sources and availability of machines for expansion, new machinery came from the USSR, while used and damaged machinery came from the various demolished shops in Dairen. For particulars see above. In regard to whether expansion was contemplated, as of early 1952, it was not clear for the local Russian management of the factory what goal the Chinese had in mind for the development of Factory No 17. Apparently the Chinese authorities had no idea of allowing the plant to specialize on production of a few large items, which course would have permitted it to match its production more or less to its equipment. On the contrary, the Chinese authorities placed orders for the same type of item with two or three plants instead of only with No 17, although No 17's officers protested this strongly. [redacted] Factory No 17 perhaps will be combined with Factory No 18, particularly if the Chinese authorities decide to produce railroad freight cars. Factory No 18 (the former Dairen-Kikai works) is a next door neighbor of No 17. In fact, No 17's foundry used to belong to Dairen-Kikai. In addition, No 17 has large empty spaces available on its property adjacent to No 18.

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- ENCLOSURE: (A) Sketches of layout and profile of the Casting Department, and its dimensions.
- (B) Sketch and details of the Hot Pressing Shop.
- (C) Layout of the First Mechanical Shop, its dimensions, location and type of machines - general information.
- (D) Sketch and detailed information on the Second Mechanical Shop.
- (E) Sketch and detailed information of the Electric Welding Shop.
- (F) Sketches and details of the Instrument (or Tool) Shop, Cold Pressing Shop, and Metal Plating Shop.
- (G) Sketch and detailed information on the Mechanical Repair Shop.
- (H) Sketch and detailed information on the Assembly Shop.
- (I) Sketch of the Factory grounds and detailed information about the grounds.

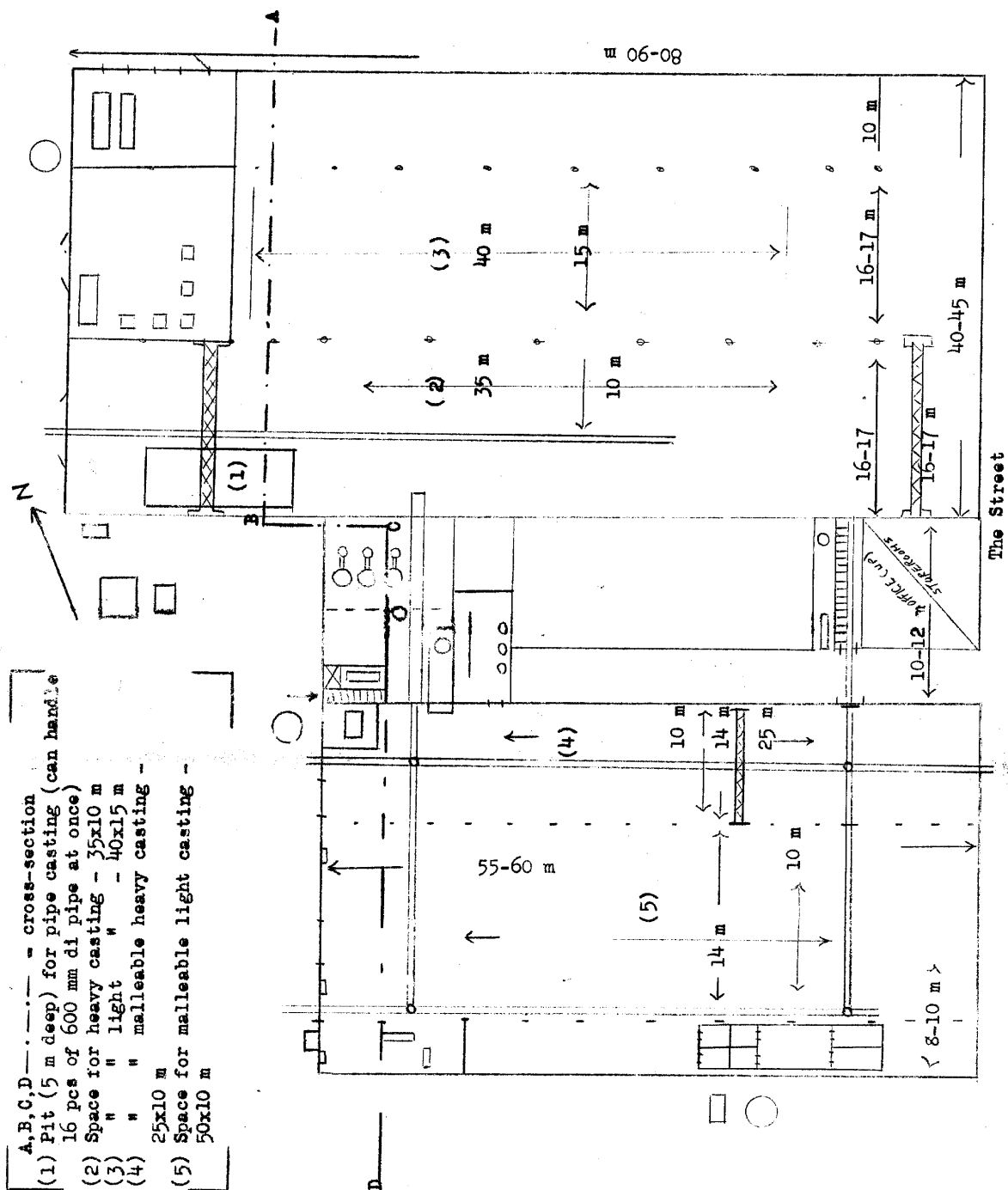
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ENCLOSURE (A)

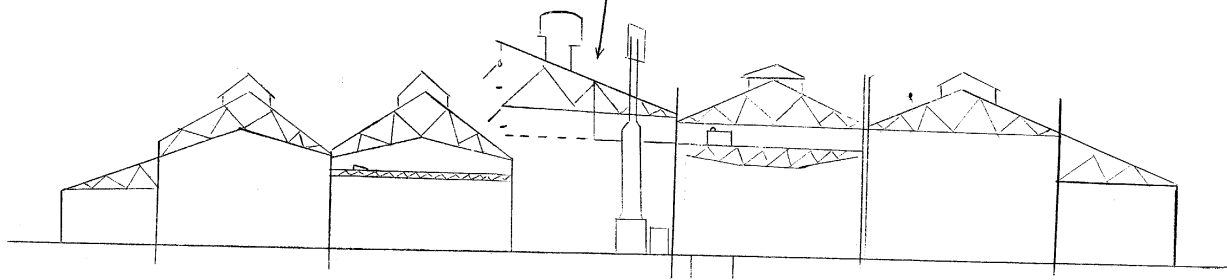
CASTING DEPARTMENT (FOUNDRY) OF NO 17 - March 1952

PROFILE AND SCHEMATIC CROSS SECTION (as per A,B,C,D)
OF CASTING DEPARTMENT - March 1952

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- end of Enclosure (A) -

This section inadvertently varied "from scale;"
should be narrower



Enclosure (A) (cont'd)

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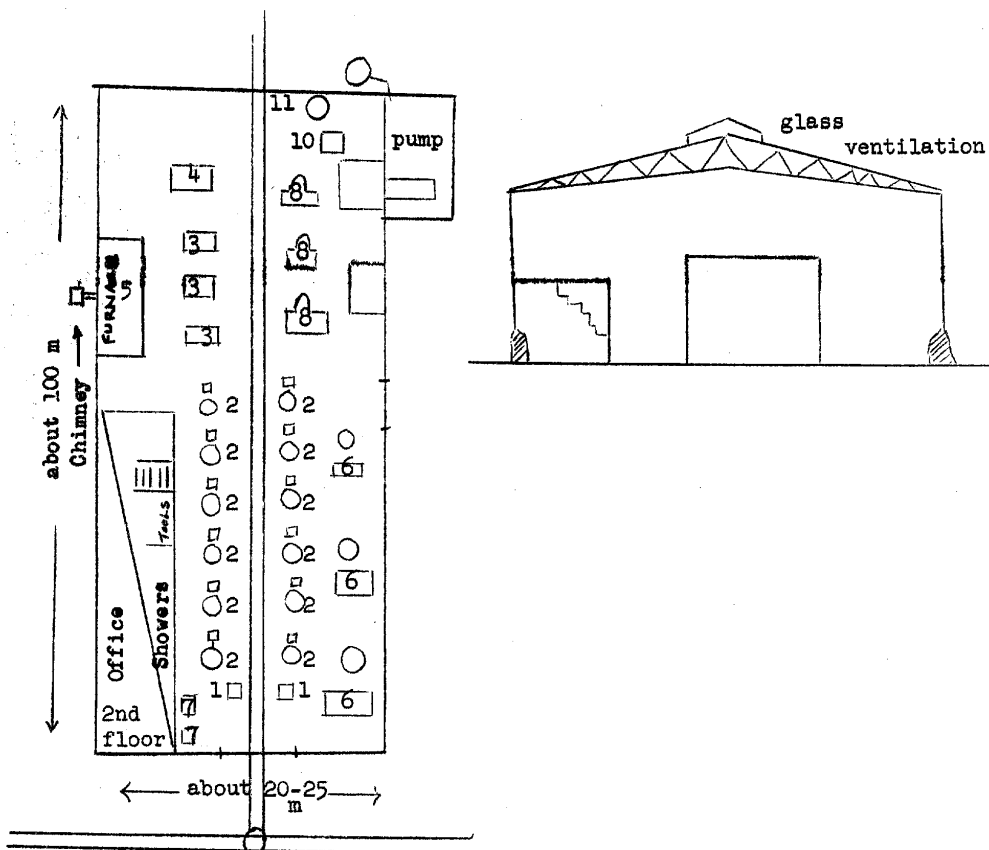
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ENCLOSURE (B)

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THE HOT PRESSING SHOP (or Forging Shop or Blacksmithy) - March 1952

The shop was of very light and low construction with a flat roof. It had iron framework and was made of concrete cinder blocks. The whole building was brought from the Suzuki plant.

- (1) Two machines to cut round bars up to approximately $1\frac{1}{2}$ " in diameter. Old, very often under repair.
- (2) Vertical friction and eccentric presses with a furnace attached to each one. There were 10 vertical friction presses - old, made in Japan, received by No 17 in 1948 and repaired; of two sizes (30 and 40 tons). The two eccentric presses were not very old - also made in Japan.
- (3) Three horizontal machines for pressing and piercing nuts; old, made in Japan, designed for making small nuts, often under repair; however, they were in operating condition.
- (4) One larger machine, designed for the same purpose as the ones mentioned in Item (3) above; this machine was not in use and was not completely assembled.
- (5) Furnaces for machines described in Item (3).
- (6) Three horizontal presses for large nuts and bolts; old, often under repair.

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Enclosure (B) cont'd

- (7) Two small machines for cleaning nuts, made by No 17.
- (8) Three hammers, one of three tons, and two of one ton each. One of the one-ton hammers was bought from the Chinese in 1949. It had been made in Dairen by a Chinese or Japanese factory and had never been used. It was designed to utilize steam, but at No 17 it worked by air. The other one-ton hammer was received in 1949 or 1950 from the USSR. This hammer had an attached air pump and was operated by an electric motor. The one-three-ton hammer came from the USSR. It did not have an air pump and [] was designed to operate by steam, but was operated by air at No 17. It was newly arrived from the USSR and [] it was in the process of going into operation; the cantilever crane had not yet been fixed. All three hammers were in good condition.
- (9) Furnace for hammers described in Item (8).
- (10) Small spring hammer, about one-half ton.
- (11) Furnace for the hammer mentioned in Item (10) and for use by blacksmiths who did hand work.

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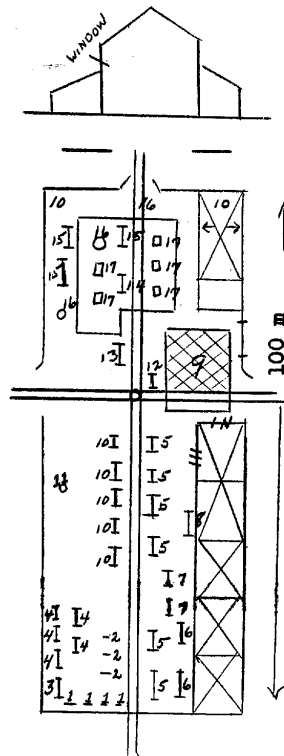
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ENCLOSURE (C)

FIRST MECHANICAL SHOP - March 1952

This building was erected by No 17 in 1949, had iron framework, and walls of concrete cinder blocks. It was 36x100 or 120 m. The shop had no belt transmission. All machines were operated by their own individual motors. Nearly all Japanese machines were rehabilitated, including the planing of the rails for mandrels. [redacted] the shop did not have a crane; the rails for the crane had been provided with the original construction. Factory No 17 in late 1951 received three telfers. These had been ordered from the USSR in 1950, but for a long time had not been distributed to factories as Chinese authorities had attempted to deliver them to their own former plants rather than to DALENERGO. The telfer is a simplified crane, usually for lighter weight (1-3 tons) with only two mechanical movements, ie hoisting and the carriage traveling along the bridge. The bridge was propelled along the shop by hand through some system or gears and shafts. The telfer may also not have a big carriage but may move on a monorail across the shop. It has no cabin. The plant management had an idea of installing one of the telfers in shop No 1 but it was not installed up to March 1952.

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- (1) Four iron saws, some of them were old and others were produced by the factory, but all were in good condition.
- (2) Three turret lathes, made in the USSR and delivered in 1950 or 1951. Diameter of items worked up on these lathes could be up to 2 or 2½ inches. Parts for the "Faust Patron" were made on these lathes.
- (3) One turret lathe, delivered from the USSR in 1941 with diameter of work up to 1 or 1½ inches. Used to produce small items such as rollers for bearings.

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Enclosure (C) cont'd

- (4) Four or five small lathes of Japanese manufacture and in good condition. Used for piston production.
- (5) Five or six "DIP" ("Dagonim i perogonim" - we will equal and surpass, [redacted] lathes from the USSR. Two of them were up to $2\frac{1}{2}$ or 3 m in length and three or four of them were up to $1\frac{1}{2}$ or 2 m in length. The former had a height of the centers of 400 mm and the latter had a 250 mm height. They were received from the USSR in 1949 and were in good condition, but their precision now is less than before. 25X1
- (6) Three lathes made in Japan. In size they were approximately the same as the large "DIP" lathes. They were in good condition, but had less precision and speed than the Soviet lathes.
- (7) Two universal cutting lathes. [redacted] where they were made but they were manufactured before World War II. They were in good condition. 25X1
- (8) One polishing machine. Old, not in good condition, seldom used.
- (9) A set of machines for production of piston rings. There were about five or seven small turning lathes (the smallest in the factory), two universal cutters, and two polishing machines. [redacted] there may have been more of them. [redacted] all of them came to No 17 along with the instrument or tool shop of DALENERGO. This instrument shop had formerly been a Japanese concern and all the machines were of Japanese make, produced prior to World War II. None of them were of the best quality or of current design. However, because they were under permanent inspection and repair, they were able to produce piston rings of good quality and which passed strict factory inspections. In 1949, polishing machines were equipped with a suction system. Therefore, no metal dust was to be found in the shop. In this particular department most of the workers were Chinese women. 25X1
- (10) About five or six lathes of small size, about one meter long and 50-100 mm in height. They were of Japanese make, of only average quality and precision, and were used for unimportant work such as the production of large bolts.
- (11) A simple vertical drill of Japanese make and of average quality.
- (12) One lathe of average size, $1\frac{1}{2}$ m long. It was of Japanese make and of good quality.
- (13) A broaching lathe, $3\frac{1}{2}$ - 4 inches in diameter, 2 m in length, with hydraulic action, of good quality and precision. It arrived from the USSR in 1949 and was used to produce internal U-shaped strips on gears or to make iron rods of an exact diameter.
- (14) One or two lathes of overaverage size and a larger diameter of production.
- (15) Three polishing machines of different capacity and shape, in good condition, some were made in Japan, some in the USSR.
- (16) Two drills of medium size, made in Japan, in good condition, but not very precise.
- (17) About five gear-cutting machines, all of them were in good condition. Two came from the USSR in 1949 and three were of Japanese manufacture prior to World War II. All of them were made self-operating. Maximum diameter of gears was 600 mm. This made it difficult to produce bridge cranes over 10 tons. None of the machines could make chevron gears.

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Enclosure (C) cont'd

In Shop No 1 there were not less than three shapers. All of them were of Japanese make. Some came from the Suzuki plant and others from the Instrument Shop which was part of DALENBERGO. Some of the shapers were received during the period 1948-49. All of them worked well enough.

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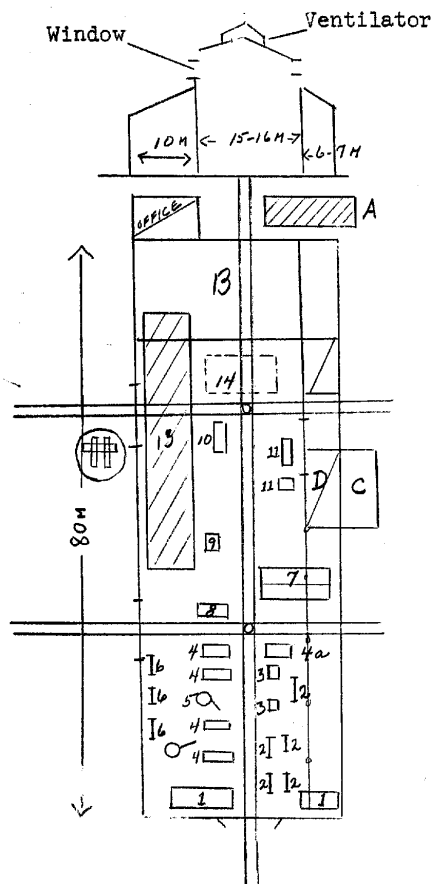
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ENCLOSURE (D)

THE SECOND MECHANICAL SHOP - March 1952



The first intention in regard to dividing machines between the First and Second Mechanical Shops was to assemble machines according to the items which they produced and within each shop according to the technical processes. However, it soon became clear that Factory No 17 could not expect to be able to adhere to a more or less permanent production plan. Therefore the machines were divided and distributed mostly by the size of the parts which they produced. The smaller machines went to Shop No 1 and the larger to No 2. However, in 1951, there was a large order placed for small nuts and bolts. Because there was no space available in the hot pressing shop in which to place 12 newly built bolt-threading machines, the management had to assemble in Mechanical Shop No 2 all the machines necessary to work up the bolts and nuts which had been pressed in the hot pressing shop. Some 40 workmen were gathered to work those machines. In the nut and bolt division most of the workers were Chinese girls. The machinery in Shop No 2 is much older than that in No 1 except for the planer, horizontal and vertical boring machines, and two radial drilling machines. In regard to the special treatment department ("B" on the sketch), this section usually worked on small parts. Different methods were used including the cyanide process. There were two ovens (one of them heated by gas), two electric stoves, and some small open furnaces.

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Enclosure (D) cont'd

The size of the Second Mechanical Shop was 32 or 35 m by 80 m.

- (A) Gas-generating installation for heat treatment.
 - (B) Special heat treatment shop.
 - (C) Former electric power substation, now used as a storeroom.
 - (D) New substation for Mechanical Shops Nos 1 and 2. The rest of the space is occupied by the Mechanical Shop itself. There is an old crane with a capacity perhaps of over five tons. It was left behind from Japanese times and was rehabilitated by the factory.
-
- (1) Two large layout blocks.
 - (2) Four large lathes, bought from a Chinese shop in 1949 and rehabilitated. A fifth lathe is smaller but of the same type. It also is in good condition but has less precision.
 - (3) Two slotting machines. Both are old but have been rehabilitated. They were used for less important work.
 - (4) Four planers of light construction with only two cutters each. They were all of Japanese origin, some being clearly copies of [] planers. They were useful for unimportant work. Usually at least one of them was under repair. 25X1
 - (4a) Two or three shapers, old, of Japanese make, and repaired. [] 25X1
 - (5) Two radial drilling machines, both in good condition. One was of Soviet make and the other Japanese.
 - (6) Three or four smaller lathes, old ones.
 - (7) A large planer with four cutters (for further particulars on this equipment []). 25X1
 - (8) One horizontal boring machine. Length, about $1\frac{1}{2}$ m; diameter of work, 900 - 1000 mm. Made in the USSR. It had several motors which were capable of many types of auxiliary use. The runners were scratched by careless Chinese workmen as shavings got on the runners. [] 25X1
 - (9) One vertical lathe which was referred to as a carousel (a vertical boring and turning machine). Its diameter of work was up to 900 mm. It was made in the USSR and was in good condition.
 - (10) A machine for cutting ends of cast pipes; made by Factory No 17.
 - (11) A face lathe which was attached to a concrete stand, ie it had no metal base. It was very old, very slow in operation, and not precise. Diameter up to 2 m.
 - (12) A similar face lathe, but with a smaller diameter; it could also be used for normal turning work on heavy parts as for drums for cables on crane carriages.

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Enclosure (D) cont'd

(13) This space was occupied by the section charged with screw cutting of nuts and bolts. For the manufacture of nuts, there were four or six machines of eight spindles each. For bolts, there were about 12 machines. All these machines were constructed by the factory and used inch scales. They all functioned reasonably well for normal market demands. However, for work requiring greater precision, or use of the metrical scale, normal lathes were used which required more time to do the work.

(14) In this spot, during cold weather, mains and fittings were examined by water pressure.



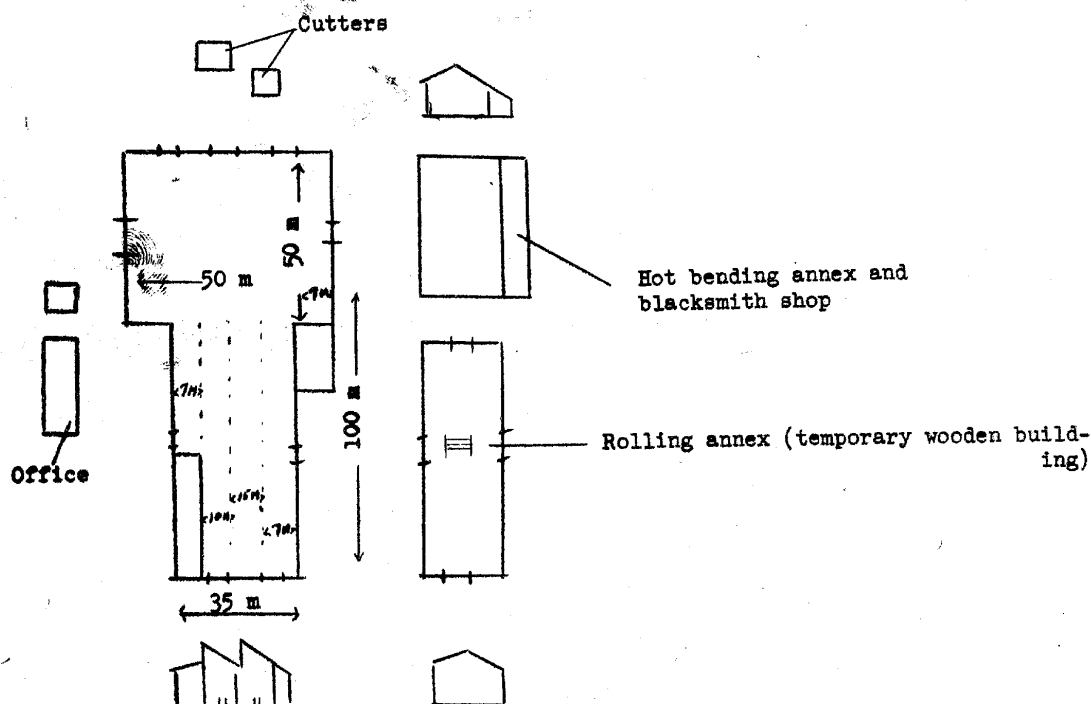
In this spot was situated simple equipment for coating cast pipes with coal tar. It consisted of elevated rails on which a beam moved, with a hand-powered operated gear. The pipes were first heated over a coke pit and afterwards were transferred to a tub filled with hot tar. The pipes were then taken out of the tub, placed on the rail, and rolled to storage piles.

-end of Enclosure (D)-

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ENCLOSURE (E)

THE ELECTRIC WELDING SHOP - March 1952
(Includes all buildings shown here)



The bulk of the information on this shop was given [redacted]

However, some additional data

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follow:

- (a) The "Elgin" welding machines were of German type, but in fact had been illegally copied by the Japanese in the Suzuki plant in Tokyo. They were not in working order as of early 1952 because there were no brushes. Most of the welding work was done by transformers of Soviet manufacture which were in good condition. A few of the transformers were of Japanese origin.
- (b) There was a German machine for pipe welding which had been used by the Suzuki staff in Anshan in 1935 or later for preparing and fixing gas pipes for blast furnaces. The machine was not in use [redacted] because there were no orders for such products. However, the machine could easily be repaired.
- (c) A machine for welding storage tanks for aviation gasoline was constructed by No 17 in late 1951. Parts used in its construction were of Soviet or Japanese origin. The machine could be used on smaller tanks of this type, ie of five or ten tons. In practice this machine was not utilized as all orders at that time had already been filled for such tanks.
- (d) In the large hall of the shop were from 7 to 10 machines designed to produce rods and beams in the shape of an O, L, or square, or as flat pieces. Most of the machines were built at the Suzuki factory in Dairen during the period 1935-45. One or two of the machines had been made [redacted] These machines worked well as they were regularly inspected and repaired. Two automatic oxygen cutters were used for circular cutting of iron sheets as well as for some curved and long straight cuts. Each of these machines consisted of a small carriage moved by a

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Enclosure (E) cont'd

small motor. Each machine could be fixed on a radial beam in order to run along a circular line or a straight line.

- (e) Rolling machines to make drums for the tanks were manufactured by No 17.
- (f) Bending machines for cold sheets up to about 10 mm were old machines of Japanese make but repaired and in working order.
- (g) In the hot bending annex there were only furnaces, ventilators, anvils and one or two friction presses similar to those in the hot pressing shop. Outside of the shop were two large shears with knives about 2 m in length able to cut iron sheets up to 14 mm. Both of these machines came from Ehrfurt, Germany, in 1949 and 1950.

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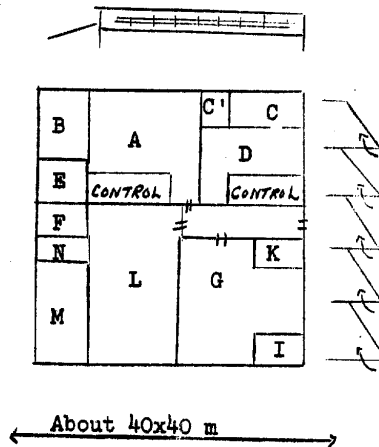
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ENCLOSURE (F)

INSTRUMENT (OR TOOL) SHOP, COLD PRESSING SHOP, AND
METAL PLATING SHOP - March 1952

Instrument (or Tool) Shop, Cold Pressing Shop

(A) thru (F): Electric Bulb Cap Department

- (A) Cutting and pressing
- (B) Glass furnaces
- (C) Galvanizing
- (D) Cleaning
- (E) Laboratory
- (F) Office

(G), (I), (K): Cold Pressing Department

- (G) Workroom
- (I) Electric power substation
- (K) Office

(L), (M), (N): Tool or Instrument Shop

- (L) Workroom
- (M) Workroom for highly qualified hand workers (pattern makers, etc)
- (N) Office

In room (A) there are 10 to 12 different kinds of pressing machines. All of them are relatively small, producing electric bulb caps from sheets of .3 mm.

In (B) there are two furnaces. It is here that the glass tops are fitted onto the caps.

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Enclosure (F) cont'd

(C) Tubs for galvanizing caps. (C') motor and dynamo furnishing permanent current for galvanizing.

(D) Cleaning before galvanizing was done here by means of rotating drums; sawdust is used. Also the stock of finished caps was kept here.

[] this department has now been removed to the electric bulb factory in Dairen, perhaps leaving to No 17 only the galvanizing equipment.

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Room (G) became practically vacant after the pressing machines were delivered to the cartridge factory in Mukden. However, some smaller presses were still left which had a very limited surface of worked metal and were often used to cut rods or small pieces of flat iron as for flat springs for high voltage insulators. There were also two or three machines for cold bending of thin iron sheets (up to 1-1.5mm) mostly used to produce some iron sheet screens, iron covers, pipes, boxes, etc. All the machines, although old, were in good condition. Some were made [] and some were made in Japan. In addition, there were also between five and seven spot welding machines left from the time when hollow-ware was produced by No 17. The machines were small, and some had been made by the Suzuki factory in Dairen and some had come with the enameling factory. All at present are not in use and are not in working order.

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In the Instrument or Tool Shop (L) were the following machines []

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- 1 - lathe to produce milling cutters - a special slow operating machine made in the USSR, of good quality and precision, and in good condition.
- 2 - universal cutting machines - old, made in Japan, repaired, in working order, but with limited precision.
- 3-4 - eccentric presses - made in Japan, rehabilitated, in working order. Metal clips used to connect driving belts were made here.
- 2 - shapers - of Japanese origin, in working order.
- 1 - slotting machine (similar to those found in the Second Mechanical Shop).
- 2-3 - lathes - Japanese made, repaired, in order, not of high precision.
- 3-4 - small cutting machines - used primarily for drill production.

In room (M) about five or seven workers of the highest qualification were employed. In Russian they were referred to as "lekalsniki." By means of handwork they produced measures, stamps, and other gadgets. []

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The hot metal plating department was moved from the room next to rooms (D), (L), (M) to the main territory of Factory No 17. The departments's former premises were given to Factory No 18. [] the department did not even have a roof over the workmen. []

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The machinery consisted only of furnaces with about four crucibles or kettles to melt zinc and some tubs to clean items to be plated.

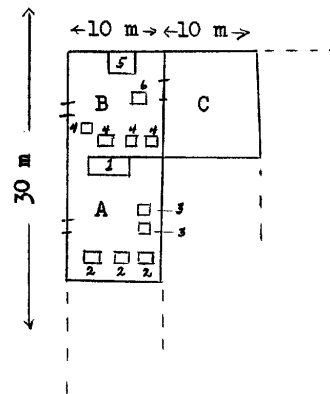
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Enclosure (F) cont'd



Metal Plating Shop

The production of motor chains was done by the metal plating shop because after the production of enameled goods was stopped, idle workers were available in the shop; they were accustomed to hot work. This department is situated in the main territory of the factory as mentioned above.

In room (A) are:

- (1) Furnace used to heat rods
- (2) Two or three presses to cut rods
- (3) Two bending presses

All of the machines were of Japanese origin, repaired, and in order.

In room (B) are:

- (4) Three or four contact electro-welding machines. Two of these came from the Suzuki plant and the others came from elsewhere. The latter were in a state of disrepair and had to be rehabilitated. All were later working satisfactorily as they were under constant inspection.
- (5) A furnace to heat chains so as to make them spiral shaped.
- (6) Boxes with hot coke.

In room (C) -
the space had merely been repaired and made ready to house something.

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-end of Enclosure (F)-

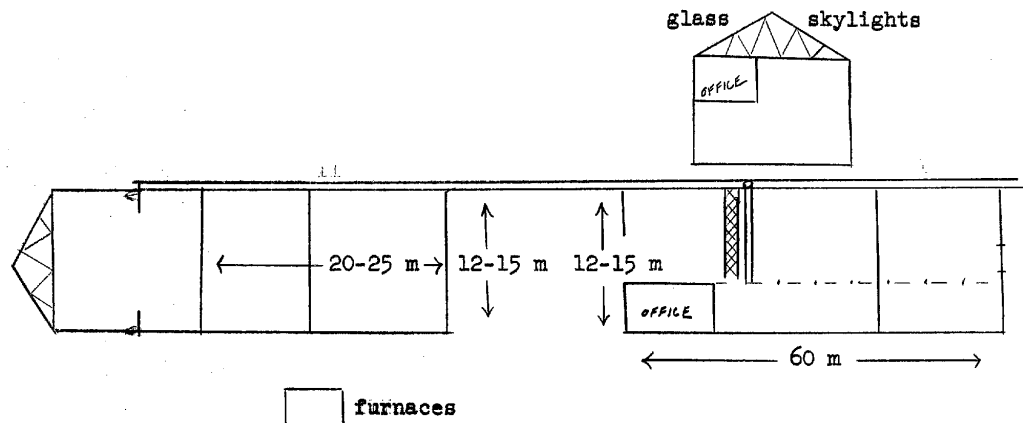
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ENCLOSURE (G)

THE MECHANICAL REPAIR SHOP - March 1952

The Repair Shop is relatively large. All its activity comes under the Chief Mechanical Engineer, who is responsible for all machines of the factory. This official organizes periodic examinations of equipment, and draws up and executes a program of current repair. Under the Chief Mechanical Engineer is a technical office and the chief of the Mechanical Repair Shop itself. As of 1951, the Chief Mechanical Engineer was in charge of all machines, except electric machines. The latter were under the supervision of the Chief Electrical Engineer who had his own repair shop for electrical work and repair only. In 1952, however, both branches were united under the Repair Department, []

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In practice, nevertheless, the shops and their activities remained separate as before. The Mechanical Repair Shop consisted of three buildings and looked like a small factory itself, as it had all departments except a foundry and was able to build some machines itself. This was done to avoid occasional and usually individual orders from being mixed in the factory shops with the main production program of the plant. In the Mechanical Repair Shop there was one "DIP" lathe from the USSR which was used for precision work on machines needing repair. There was also a large planer of Japanese [] make which was the best and largest of all in the factory, except for the large planer in the Second Mechanical Shop. There were about two large Japanese lathes, heavier, and in better condition than their counterparts in the Second Mechanical Shop. In addition, there were about two universal cutters, several smaller lathes, one or two slotting machines, one or two drills, and two or three shapers. The condition of these machines was the same as that of the equipment in the Mechanical Shop. []

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The Repair Shop had two or three sets of welding transformers, appliances for oxygen-acetylene welding and cutting, and several simple machines to cut rods. There were not any mechanical hammers as all blacksmith work was done by hand. The Repair Shop had many men working on metals with hand tools only, and some of the men were very well qualified to make precise repairs on machines. In addition to the above, the shop also had carpenters and construction workers.

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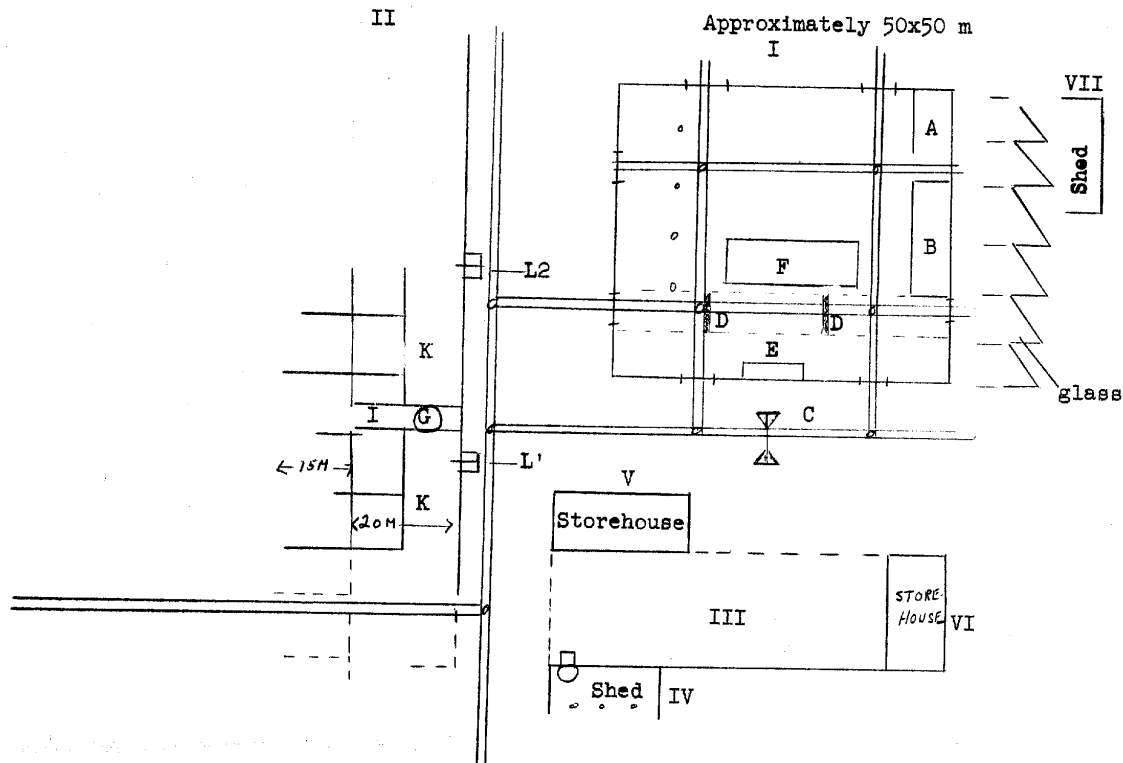
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ENCLOSURE (H)

ASSEMBLY SHOP - March 1952

- (I) The main building, which had not been destroyed, had previously been a sawmill or a woodworking shop. In 1948 it was partially empty and partially used as a godown for military explosives. No woodworking machines were found in this space. After the roof was repaired, and a new floor put in, it became a very fine shop.
- (A) Electric power substation
- (B) Office
- (C) Frame construction to hoist heavy items up to over five tons for purposes of assembly.
- (D) Two bridges with hand-operated cranes moving and hoisting up to 10 tons. the "Telfer" was established here.
- (E) A stand to break-in assembled crane reducers by making them run for several hours.
- (F) A space where several machines were located: several vertical pressing machines mostly used as perforators for small holes, several drills, one or two small lathes, and some other machines - 10 or 12 in all. None of the machines were new, but all were in operation, although they were capable of only limited precision. Over 50% of the space was taken up by work benches.

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Enclosure (H) cont'd

- (II) The stand for assembling cranes of different spans from 14m to 35 m. The span could be changed by moving the left rail, the right rail being fixed permanently in place.
 - (G) A deep concrete pit used to test the hoisting of cargo for the full length of the cable.
 - (I) A less deep hole to examine lateral movement.
 - (K) A less deep ditch for moving equipment along the shop.
 - (L) A frame construction for hoisting (L') and taking out (L2) crane carriages.
 - (III) The site of a destroyed brick building where only two small parts were left (V & VI). The latter were repaired by using walls of old shop and were used as a storehouse for parts which were to be assembled. One wall along (IV) still exists.
 - (IV) Along the old wall of (III) a shed was built where the sand cleaning pulverizer was placed.
 - (VII) A shed for blacksmith furnaces which is utilized if the shop has suitable work for it.
- The main power of this shop is not in the machines but in the handworkers.

-end of Enclosure (H)-

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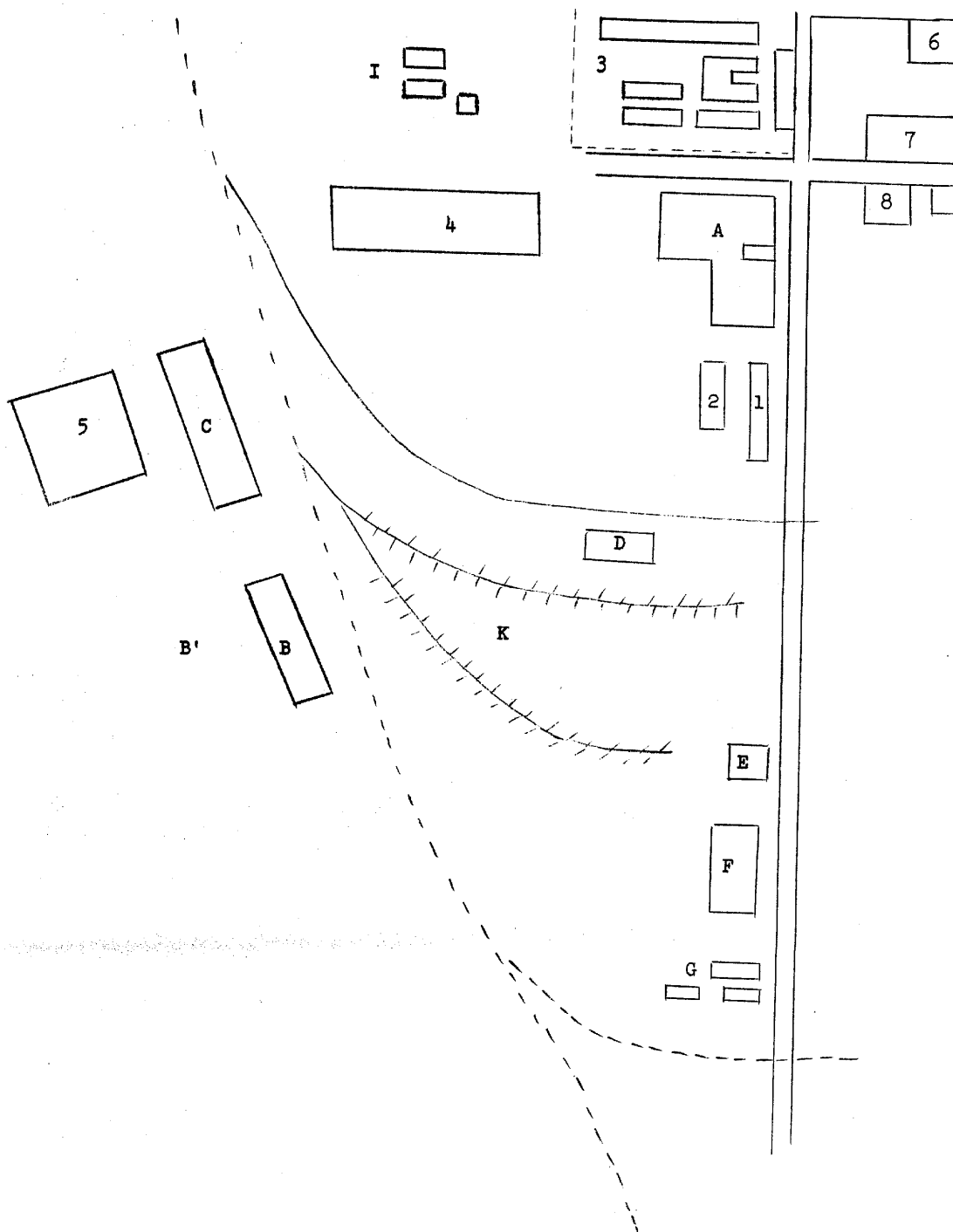
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ENCLOSURE (I)

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GROUNDS OF FACTORY NO 17 IN 1948



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Enclosure (I) cont'd

- (1) Office building
- (2) Storehouse and small foundry of switch plant of the Southern Manchurian Railway. It later became No 17's repair shop.
- (3) Buildings of a pharmaceutical factory. This plant was removed to Mukden in late 1949 or early 1950.
- (4) Switchplant of the Southern Manchurian Railway. It became the Second Mechanical Shop of Factory No 17.
- (5) A building used as an artillery storehouse up to 1950.

The following units were outside the main grounds of the factory:

- (6) A building belonging to the Instrument or Tool Plant, which structure was delivered to some Chinese factory in 1949.
- (7) The original site of the Enameled Hollow-Ware Plant in 1949 and 1950 - it was rebuilt for use as a carpenter shop and a sawmill.
- (8) One of the Dairen-Kikai buildings. It was already repaired, but no machines had been left in it.

The following structures had been ruined:

- (A) Foundry. The walls of the structure remained, but there were no roofs and almost all the window frames were gone when No 17 took over the premises. The building had been erected during World War II. The framework of the roof had been of wood and during the winters of 1945-48 all wood was seized by the local population for firewood. There was one bridge crane left in the building but it had neither motors nor cable. There were also several cupola furnaces which were badly rusted (we had to renew more than 50% of the sheets).
- (B) In this location there were only walls and the iron framework of the roof left. No machines at all. Nearby was a demolished framework of a bridge crane.
- (B') Some remnants of a concrete foundation for columns of a building.
- (C) A ruined shop building which in 1948 still had at least three walls standing, and a part of the framework of the roof. However, these materials were used to repair (B) and therefore this building was practically destroyed.
- (D) A pile of broken concrete construction. This had been a plant for making coal briquettes under the Japanese. Parts of demolished machines were strewn around. However, no electric motors were left.
- (E) A wrecked police station which was later repaired by No 17 and made into the factory dispensary.
- (F) A partially ruined two-story building. It was an office-type building and perhaps had been used as offices for the coal briquette plant. It was rehabilitated as the factory canteen for the Chinese workmen.

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Enclosure (I) cont'd

- (G) Three or four small wrecked buildings which later were made into annexes for (F). Under the Japanese these buildings had made up a small factory.
- (I) Three or four small wrecked buildings which had been previously used as a slaughterhouse. They were transformed into a canteen for Russian emigré and Chinese engineers and office workers.
- (K) Elevated railway used to discharge coal for the former coal briquette plant.

-end of Enclosure (I)-

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